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Notice of Allowability	Application No. 10/630,239	Applicant(s) SANGHVI ET AL.	
	Examiner Humera N. Sheikh	Art Unit 1615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *14 September 2005*.

2. ☒ The allowed claim(s) is/are *1-23*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

7. ☒ The Drawings filed 07/30/2003 are accepted by the Examiner.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 12/22/03; 1/15/04; 9/14/05.
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *7/5/06* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Humera N. Sheikh
HUMERA N. SHEIKH
PATENT EXAMINER
TC - 1600

DETAILED ACTION

Status of the Application

Receipt of the Information Disclosure Statements (IDS) filed 12/22/03, 01/15/04 and 09/14/05 is acknowledged.

Claims 1-23 are pending in this application. Claims 1, 2, 3, 7, 13, 14, 16-18, 21 and 22 have been amended. Claims 1-23 are allowed.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Andrej Barbic on July 05, 2006.

The application has been amended as follows:

In the Specification:

On page 1, line 2, after the title of the invention, the following has been added:

"**This application claims benefit of Provisional Application No. 60/400,046 filed August 02, 2002.**"

In the Claims:

Claim 1 will read as follows:

"A sustained-release pharmaceutical composition comprising metformin or a pharmaceutically acceptable salt thereof in an amount of about 100 mg to about 1000 mg; and a sustained-release delivery system comprising xanthan gum in an amount of about 5% to about 60% by weight; locust bean gum in an amount of about 10% to about 70% by weight; and at least one pharmaceutical diluent selected from the group consisting of monosaccharides, disaccharides, polyhydric alcohols, and mixtures of two or more thereof in an amount of about 5% to about 80% by weight, wherein therapeutically beneficial blood levels of metformin are maintained over a period of time from about 1 to about 24 hours."

In **Claim 2**, line 5, between the terms '*and*' and '*at*', the term "**the**" has been **added**.

In **Claim 3**, line 4, between the terms '*and*' and '*at*', the term "**the**" has been **added**.

In **Claim 7**, line 2, between the terms '*the*' and '*pharmaceutical*', the term "**at least one**" has been **added**.

Claim 13 will read as follows:

"A sustained-release pharmaceutical composition comprising metformin or a pharmaceutically acceptable salt thereof; and a sustained-release delivery system which comprises a hydrophilic compound selected from the group consisting of xanthan gum, deacylated xanthan gum, a carboxymethyl ester of xanthan gum, a propylene glycol ester of xanthan gum, tragacanth, pectin, acacia, karaya, alginate, agar, carageenan, gellan gum, and a mixture of two or more thereof; a homopolysaccharide compound selected from the group consisting of guar gum, hydroxypropyl guar gum, locust bean gum, and a mixture of two or more thereof; and one or more pharmaceutical diluents selected from the group consisting of monosaccharides, disaccharides, polyhydric alcohols, and mixtures of two or more thereof, wherein therapeutically beneficial blood levels of metformin are maintained over a period of time from about 1 to about 24 hours."

Claim 14 will read as follows:

"The sustained-release pharmaceutical composition of claim 13, wherein the one or more pharmaceutical diluents are selected from the group consisting of starch, lactose, dextrose, mannitol, sucrose, microcrystalline cellulose, sorbitol, xylitol, fructose, and a mixture of two or more thereof."

In **Claim 16**, line 2, the term '*comprising*' has been changed to "**comprises**".

In **Claim 17**, line 3, after the term 'about', the term '*1:01*' has been changed to "**1:0.1**".

In **Claim 18**, line 3, after the term 'about', the term '*1:03*' has been changed to "**1:0.3**".

Claim 21 will read as follows:

"A sustained-release pharmaceutical composition comprising metformin or a pharmaceutically acceptable salt thereof; and a sustained-release delivery system comprising at least one hydrophilic compound selected from the group consisting of gums, cellulose ethers, acrylic resins, polyvinyl pyrrolidone, protein-derived compounds, and mixtures of two or more thereof, at least one cross-linking agent selected from the group consisting of homopolysachharides, alginic acids, alginic acid derivatives, hydrocolloids, and mixtures of two or more thereof, and at least one pharmaceutical diluent selected from the group consisting of monosaccharides, disaccharides, polyhydric alcohols, and mixtures of two or more thereof, wherein the weight ratio of metformin or the pharmaceutically acceptable salt thereof to the at least one hydrophilic compound and the at least one cross-linking agent is from about 1:0.2 to about 1:1.5; wherein the weight ratio of the at least one pharmaceutical diluent to the at least one hydrophilic compound is from about 1:4 to about 4:1; and wherein therapeutically beneficial blood levels of metformin are maintained over a period of time from about 1 to about 24 hours."

Claim 22 will read as follows:

"The sustained-release pharmaceutical composition of claim 21, wherein the sustained-release delivery system further comprises at least one cationic cross-linking compound selected from the group consisting of monovalent metal cations, multivalent metal cations, inorganic salts, and mixtures of two or more thereof; and wherein the weight ratio of the at least one hydrophilic compound to the at least one cationic cross-linking compound is from about 1:4 to about 4:1."

Allowable Subject Matter

Claims 1-23 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reasons for allowance are that the prior art does not disclose nor teach the instant sustained-release metformin composition comprising the instant combination of hydrophilic components, cross-linking agents and pharmaceutical diluents provided in their respective Markush groupings, with their respective amounts and/or ranges. The prior art fails to disclose or teach a combination of the claimed hydrophilic components, cross-linking agents and pharmaceutical diluents to achieve therapeutically effective blood levels of metformin for up to a 24-hour period. The prior art is lacking in terms of disclosing or teaching the specified incorporation of ingredients in their specific amounts and/or ranges to result in a sustained-release metformin pharmaceutical composition.

The instant invention demonstrates an improvement over prior art formulations in that it provides for therapeutically-effective sustained-release metformin compositions for treating diabetes and related disorders, whereby the metformin provides for improved glucose tolerance in impaired glucose tolerant subjects.

In a telephonic interview held on 07/05/06 between Applicant's representative and the Examiner, suggestions were made to incorporate the specific Markush grouping of pharmaceutical diluents in each of independent claims 1, 13 and 21, as well as incorporating the specific Markush grouping the hydrophilic compound and cross-linking agent in independent claim 21. Suggestions were also made to recite the definition of sustained-release as disclosed in instant specification, page 12. Applicant's representative agreed to the changes proposed by the Examiner.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Humera N. Sheikh whose telephone number is (571) 272-0604. The examiner can normally be reached on Monday through Friday from 8:00A.M. to 5:30P.M., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, can be reached on (571) 272-8373. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Humera N. Sheikh Humera N. Sheikh

Patent Examiner TC-1600

Art Unit 1615

July 07, 2006

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